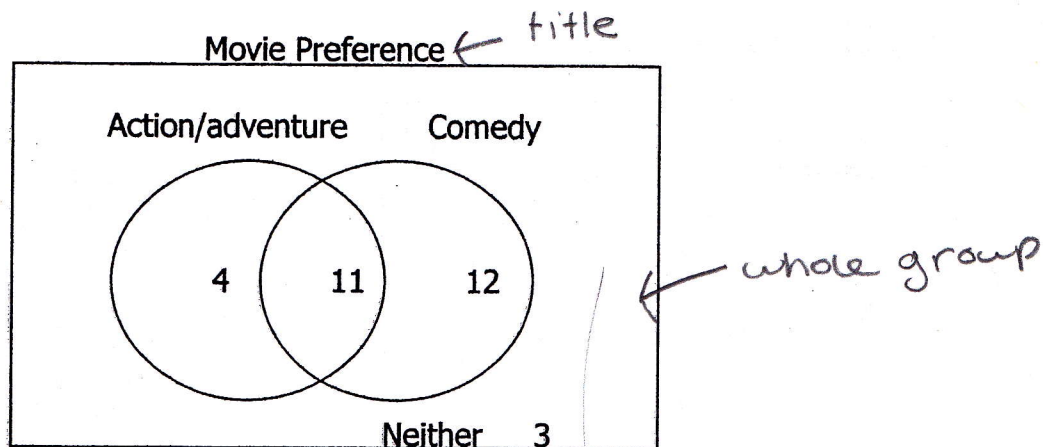


Venn Diagrams in Mathematics

Name _____ Date _____ Block _____

A Venn diagram is a drawing in which circular areas represent groups of items sharing common properties. This process of visualizing logical relationships was devised by John Venn.

The Venn drawing consists of two or more circles, each representing a different group. Each diagram begins with a rectangle that represents the entire set. Then, each set in a problem is represented by a circle. Any values that belong to more than one set will be placed in the sections where the circles overlap.



The Venn diagram above shows the types of movies students in a mathematics class prefer.

How many students are represented in the graph? 30

How many students prefer both types of movies? 11

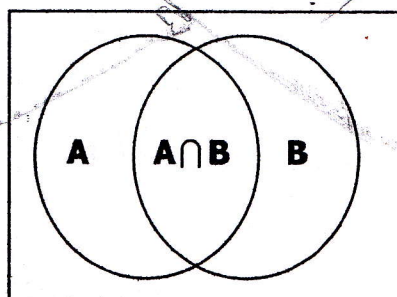
How many students prefer action/adventure movies? 15

How many students prefer only comedy? 12

What does the rectangle represent? all students in math class

How many students prefer comedy? 23

The Venn diagram below shows two sets **A** and **B**. Values that belong to both set **A** and set **B** are located in the center region labeled $A \cap B$ where the circles overlap. It is read **A** intersects **B**. The notation $A \cup B$ represents the entire region covered by both sets **A** and **B**. It is read **A** union with **B**.



347 base 8
10 base 5

Solving word problems using Venn diagrams.

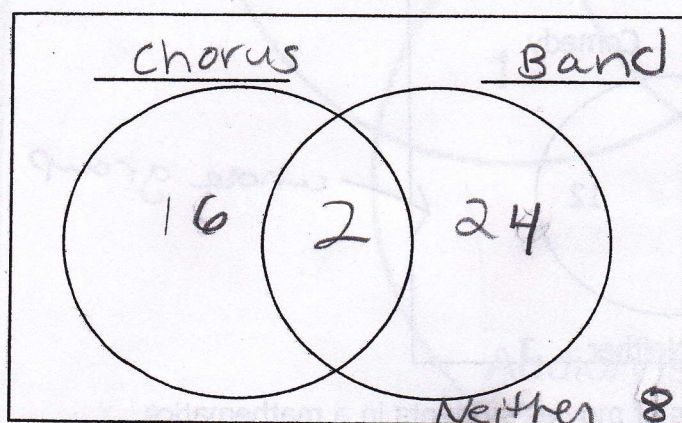


1. In a class of 50 students, 18 take Chorus, 26 take Band and 2 take both Chorus and Band. How many students in the class are not enrolled in either Chorus or Band?

Start with the rectangle and the number of circles you will need.

Next fill in the number in the intersection. (HINT: Work from the inside out) Subtract to find out the amount for the circles. Add to check your work.

MUSIC



$$\begin{array}{r} 18 \\ + 24 \\ \hline 42 \end{array}$$

Chorus

$$\begin{array}{r} 18 \\ - 2 \\ \hline 16 \end{array}$$

16

Chorus only

Band - 26

$$\begin{array}{r} 26 \\ - 2 \\ \hline 24 \end{array}$$

24

Band only



2. In a school of 320 students, 85 students are in the band, 200 students are on sports teams and 60 students participate in both activities. How many students are involved in either band or sports? 285

neither 50

$$\begin{array}{r} 50 \\ - 42 \\ \hline 8 \end{array}$$

Chorus or Band

$$\begin{array}{r} 16 \\ + 24 \\ \hline 40 \end{array}$$

$$\begin{array}{r} 320 \\ - 85 \\ \hline 235 \\ + 60 \\ \hline 295 \end{array}$$

